MSNE 402 Mechanical Properties of Materials
Fall 2014, MWF 11-11:50 AM, MEB 128

Instructor: Dr. Jun Lou, MEB 223, jlou@rice.edu, Ext. 3573
Office hour: MWF 11:50-12:30 or by appointment
Degree plan: required for the BS in MSNE
Credits: 3 semester hours
Grade mode: normal
Pre-requisites and co-requisites: MATH 211 or equivalent

Synopsis:
This course covers basic aspects of the mechanical properties of solid materials. The materials covered will be in depth and will be applied to various engineering problems to emphasize students' understanding and future application of the knowledge. The course will also introduce students to techniques for characterization of structure and properties of solid materials at different length scales, and some recent developments in experimental and modeling methods to study the mechanical behavior of materials at micro- and nano- scales.

Textbook and Other Related Course Materials:
M. A. Meyers and K. K. Chawla, Mechanical Behavior of Materials, Cambridge University Press, UK 2009. Specific reading assignments will be given in class.
Reference:
R. W. Hertzberg, Deformation and Fracture Mechanics of Engineering Materials, Fourth Edition, Wiley, NY 1996
N. E. Dowling, Mechanical Behavior of Materials, Second Edition, Prentice-Hall, Inc., NJ 1999
G. E. Dieter, Mechanical Metallurgy, Third Edition, McGraw-Hill, NY 1986
S. Suresh, Fatigue of Materials, Second Edition, Cambridge, 1998
J. Weertman and J. R. Weertman, Elementary Dislocation Theory, Oxford, 1992

Grading:
HW 30% Quiz I 15% Quiz II 15% Lab Attendance 5% Final 35%

Website of the course:
Go to https://owlspace-ccm.rice.edu/portal
Sign in use your NetID and normal password. Go to the "MSCI 402/502 F14" tab to access course information.

Homework policy:
Assignments will be due **at 5PM** normally one week from the day of assignments unless otherwise notified by the instructor or indicated in the course schedule. Students should feel free to discuss homework problems with others but should always present their own work. **No late home work** will be accepted, please seek approval from the instructor for special conditions **before the deadline**.

This course is intended to address ABET General Criterion 3. Student Outcomes:
(a) an ability to apply mathematics, science and engineering principles.
(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

Honor Code
Both quizzes and the final exam will require the honor pledge.
The term paper will require the honor pledge.
Student with Disabilities
Any student with a disability requiring accommodations in this course is encouraged to contact me after class or during office hours. Additionally, students should contact Disability Support Services Office in the Allen Center.